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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/353,777

07/15/1999

HIROYUKI KAGAWA

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7590

11/20/2002

ANTONELLI TERRY STOUT AND KRAUS  
SUITE 1800  
1300 NORTH SEVENTEENTH STREET  
ARLINGTON, VA 22209

EXAMINER

QI, ZHI QIANG

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/353,777

Applicant(s)

KAGAWA ET AL.

Examiner

Mike Qi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-29 is/are allowed.
- 6) ☒ Claim(s) 1,3,5 and 6 is/are rejected.
- 7) ☒ Claim(s) 2,4 and 7-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

The previous restriction has been withdrawn. The rejection is presented below.

#### *Claim Objections*

1. Claim 27 is objected to because of the following informalities: recitation "... a st4ep of ..." should be - - ... a step of ... - -. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US ~~6,454,734~~ <sup>6,229,586</sup> (Date et al).

Claim 1, Date discloses (col.3, line 55 – col.4, line 14; Fig.2) a reflection-type liquid crystal device comprising a pair of glass substrates (22, 23), a liquid crystal layer (25) sandwiched between the pair of substrates (22, 23), and a light reflector section (including the polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made of metal such as silver) provided between the liquid crystal layer (25) and the substrate (23).

Date does not expressly disclose the light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface.

However, Date discloses that polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made of metal such as silver are laminated so as to form a light reflection section. The polyimide orientation film (36) is a polymeric medium layer and the reflection film (33) is made of silver as the silver particles having a high reflectivity. Therefore, a light reflector section including a polymeric medium layer such as the polyimide orientation film and laminated with a fine silver reflector (precipitated on the surface) would have been obvious as the fine silver particles would increase the reflectance because the silver particles having high reflectivity.

Therefore, it would have been obvious to those skilled in the art to use a light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface as claimed in claim 1 for achieving higher reflectance.

Claim 3, "the surface of the polymeric medium at the light reflector section controls orientation of liquid crystal molecules in the liquid crystal layer" means the function of the material polymeric medium is an orientation film, and Date discloses (col. 4, lines 8-14) that the orientation film (36) is made by rubbing a polymeric film such as polyimide. Therefore, using polymeric medium material such as polyimide to control the orientation of the liquid crystal molecules in the liquid crystal layer as claimed in claim 3 would have been at least obvious.

Claim 6, Date discloses (col. 3, line 55 – col.4, line 7; Fig.2) that a color filter (29) (The Fig.2 shows the reference number 39 is the color filter, but the reference number for the color filter must be 29 according to the specification.) provided between the substrate (22) and the liquid crystal layer (25) for achieving the color display.

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4. Claims 5 and 10 according to claim 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Date as applied to claims 1, 3 and 6 above, and further in view of Us 6,219,120 (Sasaki et al).

Claim 5, to arrange the color filter between the light reflector section and the liquid crystal layer for achieving the color display would have been at least an obvious variation. Sasaki discloses <sup>(col. 11, lines 2-7)</sup> (Fig.2) that the color filter (16) is provided between the light reflector member (25) and the liquid crystal layer (13), and such color filter with the corrugations to attain a superior display quality.

Claim 10 according to claim 1, Sasaki discloses (col.13, lines 20-29; Fig.2) that the reflector member (25) having corrugated surface (25a) (functions as a light scattering layer for scattering the light reflected at the light reflector section), so that the reflecting efficiency is improved and a bright display is provided. Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange a scattering layer for scattering the light at the light reflector section as claimed in claim 10 for achieving a bright display.

#### ***Allowable Subject Matter***

5. Claims 2, 4, 7-9, 10 according to claims 7 and 8, 11-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 18-29 are allowed.

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7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a reflection-type liquid crystal device and a manufacture process comprising various elements and steps, more specifically, as the following:

the polymeric medium is composed of a silver-containing polyimide, and the polyimide containing the fine silver particles formed by reduction of monovalent silver [claim 2];

the reflector section is provided between the electrode layer and the liquid crystal layer [claim 4];

the light reflector section has a light reflector layer formed from a silver-containing photosensitive polymeric medium so that the fine silver particles precipitated giving electrical conduction through their mutual contact [claim 7];

the polymeric medium at the light reflector section contains fine non-conductive particles giving a light scaterability to the surface of the polymeric medium [claim 11];

the manufacture of making process comprising applying mixture containing monovalent silver and photosensitive polymeric medium, exposing the mixture to light, and precipitating fine silver particles on the surface of the light reflector layer [claims 18-19].

The closest references US 6,229,586 (Date et al), US 6,219,120 (Sasaki et al) and US 6,414,734 (Shigeta et al) disclose a reflection-type liquid crystal display device having laminated reflector section (polyimide orientation film and reflection film) in which

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the reflection film is made of silver and the polyimide orientation film control the orientation of the molecules. But the prior art of record do not disclose the silver-containing polyimide forming the light reflector layer and using mixture containing monovalent silver and the photosensitive polymeric medium (polyimide) forming the light reflector layer.

Note: claim 10 is a multiple dependent claim. The claim 1 is under the rejection above. Therefore, the claim 10 according to claim 1 is rejected, but the claim 10 according to claim 7 or 8 is objected since the claim 7 is objected above.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213. The examiner can normally be reached on 349.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7721 for regular communications and (703) 308-7721 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi  
October 21, 2002

  
ROBERT H. KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2000